

Group 1: Matching entrance and exit channels

(also with thanks to Walid for his notes)

Starting (pragmatic) observations:

Surrogates 'sometimes' work at (10~20%) level -
presumed can be refined? - but already of value

Is essential to use (and trust) theory - and to
use expt selectively to fix (local) parameters

Questions:

We need new theoretical developments ? - No!

Benchmarked robustness of technique ? - No!

How to proceed – benchmarking – consensus ?

Example of ($^3\text{He}, \alpha$) Was accepted that:

Theory available for 'reasonably reliable' calculations of both the direct and compound reaction mechanisms - yields versus spin.

So, what are:

Compound versus direct reaction contributions?

Direct mechanism route thru' to compound?

Angular momentum populations in each case?

Experimental validation?

Way forward – e.g. for suitable ($^3\text{He},\alpha$) test case

Obstacles: essentially none – is none trivial – but who does it?

- 1) ($^3\text{He},\alpha$) calculations and measurements (fore and aft) to delineate direct and compound α 's.
- 2) Calculations of associated spin distributions
- 3) Combine with power of modern 4π gamma-spectroscopy technology (angular momentum detectors) to verify/clarify spin populations (many gammas – many cross checks)

Other generic questions:

Worth the trouble/is feasible when gamma spectrum is other than very simple to interpret ?

The Oslo group has made considerable progress.

Can one sort out continuum of gamma rays also?

Heavy-ion reactions are disadvantageous?

No need for neutron detection - can all be done with gammas?

Need to excite young people into this - being sold right - how much effort needed - by whom?